



Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawkesbury, ON  
K6A 1K7  
Canada

Tel (613) 632-5200

**D3537-1**  
**Job Sheet 179060**



Part No: D3537-1

Job Qty: 50 ea <sup>DAS 21</sup> 9-89

Part Name: Wearpad



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 6/13/18

Job Tracking No:

Due Date: 7/2/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG REV E IPP Rev:A New Issue 07-02-14 JLM IPP REV:B 15.10.16 added automated welding DD verf:JLM

Ship Via:

**Bill of Materials**

**Job Routing**

| Op No | Operation          | Qty    | Start Date | Due Date | Standard  |         | Workcenter/Supplier   |           | Sign-off                                      |
|-------|--------------------|--------|------------|----------|-----------|---------|-----------------------|-----------|-----------------------------------------------|
|       |                    |        |            |          | Setup hrs | Run Hrs | Workcenter / Supplier | Lead Time |                                               |
| 90    | Start up Operation | 50 Ea  |            | 7/2/18   | 0.00      | 0.00    | Start Up Waterjet     |           | <sup>18-06-17</sup>                           |
| 105   | Waterjet           | 50 pcs |            | 7/2/18   | 0.00      | 2.15    | Waterjet1             |           | <sup>18-06-17</sup>                           |
| 125   | QC                 | 50 pcs |            | 7/2/18   | 0.00      | 0.00    | QC8                   |           | <sup>38</sup>                                 |
| 140   | Brake NC           | 50 pcs |            | 7/2/18   | 0.03      | 0.65    | Brake NC 1            |           | <sup>38</sup> <sup>DAS</sup>                  |
| 150   | QC                 | 50 pcs |            | 7/2/18   | 0.00      | 0.00    | QC5                   |           | <sup>38</sup>                                 |
| 160   | Autoweld 1         | 50 pcs |            | 7/2/18   | 0.00      | 3.71    | Automated welding     |           | <sup>18-06-27</sup> <sup>9-89</sup>           |
| 170   | QC                 | 50 pcs |            | 7/2/18   | 0.00      | 0.00    | QC10                  |           | <sup>18-06-27</sup>                           |
| 180   | QC                 | 50 pcs |            | 7/2/18   | 0.00      | 0.00    | QC5                   |           | <sup>18-06-27</sup>                           |
| 210   | Packaging          | 50 pcs |            | 7/2/18   | 0.00      | 0.00    | Packaging3-1          |           | <sup>18-7-01</sup>                            |
| 220   | QC21-SA            | 50 Ea  |            | 7/2/18   | 0.00      | 0.00    | QC21                  |           | <sup>DAS 21</sup> <sup>9-89</sup> JUL 03 2018 |

**Job BOM**

| Part / Item | Component Name     | Quantity            | Operation             | Container          |
|-------------|--------------------|---------------------|-----------------------|--------------------|
| M304S16GA   | 304/316 Sheet .063 | 5.3000 sf (.106 ea) | 90-Start up Operation | <sup>5090376</sup> |

**Job Allocations**

| Operation             | Component Part | Required | Inventory | Allocated |
|-----------------------|----------------|----------|-----------|-----------|
| 90-Start up Operation | M304S16GA      | 5        | 265       | 0         |

**Part Specifications**

| Spec No | Description | Target/Tolerance    | Limits         | Type | Special Comments |
|---------|-------------|---------------------|----------------|------|------------------|
| 1       | Wearpad     | 4.250inches ± 0.010 | 4.260<br>4.240 |      |                  |
| 2       | Wearpad     | 3.500inches ± 0.010 | 3.510<br>3.490 |      |                  |
| 3       | Wearpad     | 1.970inches ± 0.030 | 2.000<br>1.940 |      |                  |
| 4       | Wearpad     | 3.630inches ± 0.030 | 3.660<br>3.600 |      |                  |
| 5       | Wearpad     | 2.420inches ± 0.010 | 2.430<br>2.410 |      |                  |
| 6       | Wearpad     | 0.220inches ± 0.010 | 0.230<br>0.210 |      |                  |



# WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_  
Work Order update only

| Work Order:                  |  | AGAINST DEPARTMENT/PROCESS                   |                     |
|------------------------------|--|----------------------------------------------|---------------------|
| Part No.:                    |  | Cross tube                                   | Water Jet           |
| NCR No.:                     |  | Small Fab                                    | Prod. Eng. Coord.   |
|                              |  | Finishing                                    | Rec/Store/Packaging |
|                              |  | Composite                                    | Supplier            |
| Date:                        |  | MRB (QS1042) Approval                        |                     |
| Step #:                      |  |                                              |                     |
| Description:                 |  |                                              |                     |
| QTY Effective:               |  |                                              |                     |
| Completed By                 |  | Lead hand / Supervisor Approval Verification |                     |
| QC / QA Coordinator Approval |  |                                              |                     |
| Positioned Wrong             |  | Outside Dimensions                           |                     |
| Over/Under tolerance         |  | Part Incorrect                               |                     |
| Part Lost/Missing            |  | Part Moved                                   |                     |
| Drawing                      |  | Finish                                       |                     |
| Misread                      |  | Turning Sequence                             |                     |
| Off-set                      |  | Mislabeled                                   |                     |
| Fit/Function                 |  | Misaligned/off center                        |                     |
| Countersink                  |  | Cut Too Short                                |                     |
| Heat Treat                   |  | Instructions Incomplete/Unclear              |                     |
| Wave/Twist in Tube           |  | Drill Holes                                  |                     |
| Crushing                     |  | Marks/Chatter                                |                     |
| No Re-verifica               |  | OTHER:                                       |                     |
| Operator                     |  |                                              |                     |
| Offset/Setup                 |  |                                              |                     |
| Supplier                     |  |                                              |                     |
| Training                     |  |                                              |                     |
| Use for Testin               |  |                                              |                     |
| Poor Information             |  |                                              |                     |
| Rushing                      |  |                                              |                     |
| Product Improvement          |  |                                              |                     |
| Process Improvement          |  |                                              |                     |
| Manufacturing Process        |  |                                              |                     |
| Past Due                     |  |                                              |                     |
| Misidentified                |  |                                              |                     |
| Internal Transport           |  |                                              |                     |
| Tribal Knowledge             |  |                                              |                     |
| LOA                          |  |                                              |                     |
| Substation                   |  |                                              |                     |
| Past Expiry Date             |  |                                              |                     |
| Environment                  |  |                                              |                     |
| Design                       |  |                                              |                     |
| Doc/Data                     |  |                                              |                     |
| Equip/Tooling                |  |                                              |                     |
| Handling/Pre                 |  |                                              |                     |
| Material                     |  |                                              |                     |

**Container No: S081682**  
**Part: D3537 - 1**  
**Job No: 179060**  
**Serial No/Batch: S081682**  
Revision:  
Inspector:  
Exp Date:  
Instructions:

**DART AEROSPACE**  
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Email: sales@dartaero.com  
www.dartaerospace.com

Date: 06/17/18

|   |         |                         |                |
|---|---------|-------------------------|----------------|
| 7 | Wearpad | 0.375inches $\pm$ 0.010 | 0.385<br>0.365 |
| 8 | Wearpad | 0.063inches $\pm$ 0.010 | 0.073<br>0.053 |

Plex 6/13/18 8:57 AM Dart.lajeunesse.marie



DQA: \_\_\_\_\_ Date: \_\_\_\_\_



## WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order update only ☐

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|
| Work Order: _____<br><br>Part No. _____<br><br>NCR No. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>DISPOSITION</b><br><br>Rework <input type="checkbox"/><br>Scrap <input type="checkbox"/><br>Use-as-is <input type="checkbox"/><br>Suspected Unapproved <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>AGAINST DEPARTMENT/PROCESS</b><br><br><div style="display: flex; justify-content: space-between;"> <div>             Skid-tube <input type="checkbox"/><br/>             Machining <input type="checkbox"/><br/>             Thermoforming <input type="checkbox"/><br/>             Large Fab <input type="checkbox"/> </div> <div>             Cross tube <input type="checkbox"/><br/>             Small Fab <input type="checkbox"/><br/>             Finishing <input type="checkbox"/><br/>             Composite <input type="checkbox"/> </div> <div>             Water Jet <input type="checkbox"/><br/>             Prod. Eng. Coord. <input type="checkbox"/><br/>             Rec/Store/Packaging <input type="checkbox"/><br/>             Supplier <input type="checkbox"/> </div> <div>             Engineering <input type="checkbox"/><br/>             Quality <input type="checkbox"/><br/>             Other <input type="checkbox"/> </div> </div>                                                                                                                                                                                                                           |  |                                              |  |
| Date : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Step #: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | QTY Effective : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | MRB (QSI042) Approval                        |  |
| Description Work Order Deviation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Disposition                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | Completed By                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | Lead hand / Supervisor Approval Verification |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | QC / QA Coordinator Approval                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |
| Root Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FAULT CATEGORY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |                                              |  |
| <div style="display: flex;"> <div style="flex: 1;">           Environment <input type="checkbox"/><br/>           Design <input type="checkbox"/><br/>           Doc/Data <input type="checkbox"/><br/>           Equip/Tooling <input type="checkbox"/><br/>           Handling/Pre <input type="checkbox"/><br/>           Material <input type="checkbox"/><br/>           Internal Transport <input type="checkbox"/><br/>           Tribal Knowledge <input type="checkbox"/><br/>           LOA <input type="checkbox"/><br/>           Substation <input type="checkbox"/><br/>           Past Expiry Date <input type="checkbox"/><br/>           Misidentified <input type="checkbox"/> </div> <div style="flex: 1;">           No Re-verification <input type="checkbox"/><br/>           Operator <input type="checkbox"/><br/>           Offset/Setup <input type="checkbox"/><br/>           Supplier <input type="checkbox"/><br/>           Training <input type="checkbox"/><br/>           Use for Testing <input type="checkbox"/><br/>           Poor Information <input type="checkbox"/><br/>           Rushing <input type="checkbox"/><br/>           Product Improvement <input type="checkbox"/><br/>           Process Improvement <input type="checkbox"/><br/>           Manufacturing Process <input type="checkbox"/><br/>           Past Due <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Pressure/Forced <input type="checkbox"/><br/>           Bending <input type="checkbox"/><br/>           Centre Not Concentric <input type="checkbox"/><br/>           Cracks <input type="checkbox"/><br/>           Crimp/Kink/Ripple/Wave <input type="checkbox"/><br/>           Cuffs <input type="checkbox"/><br/>           Crushing <input type="checkbox"/><br/>           Heat Treat <input type="checkbox"/><br/>           Wave/Twist in Tube <input type="checkbox"/><br/>           Marks/Chatter <input type="checkbox"/> </div> <div style="flex: 1;">           Temperature/Cure <input type="checkbox"/><br/>           Set-up <input type="checkbox"/><br/>           BOM/Route <input type="checkbox"/><br/>           Broken/Damage/Defect <input type="checkbox"/><br/>           Inspection Incomplete/Unqualified <input type="checkbox"/><br/>           Contamination <input type="checkbox"/><br/>           Countersink <input type="checkbox"/><br/>           Cut Too Short <input type="checkbox"/><br/>           Instructions Incomplete/Unclear <input type="checkbox"/><br/>           Drill Holes <input type="checkbox"/> </div> </div> | <div style="display: flex;"> <div style="flex: 1;">           Power Loss/Surge <input type="checkbox"/><br/>           Folio/Program <input type="checkbox"/><br/>           Grain <input type="checkbox"/><br/>           Weld <input type="checkbox"/><br/>           Wrong Stock Pulled <input type="checkbox"/><br/>           Out of Sequence <input type="checkbox"/><br/>           Off-set <input type="checkbox"/><br/>           Misabeled <input type="checkbox"/><br/>           Fit/Function <input type="checkbox"/><br/>           Misaligned/off center <input type="checkbox"/> </div> <div style="flex: 1;">           Positioned Wrong <input type="checkbox"/><br/>           Outside Dimensions <input type="checkbox"/><br/>           Over/Under tolerance <input type="checkbox"/><br/>           Part Incorrect <input type="checkbox"/><br/>           Part Lost/Missing <input type="checkbox"/><br/>           Part Moved <input type="checkbox"/><br/>           Drawing <input type="checkbox"/><br/>           Finish <input type="checkbox"/><br/>           Misread <input type="checkbox"/><br/>           Turning Sequence <input type="checkbox"/> </div> </div> |  |                                              |  |
| OTHER : _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |                                              |  |